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ABSTRACT

A study was conducted to examine the extent to which verbal statements of context influenced the perception of emotion in facial expressions. In addition, it examined the pairing of both congruent and incongruent stimulus sources. The subjects, 98 college students, were shown photographs of four male and four female actors displaying facial expressions of fear, anger, sadness, and happiness. The subjects were also shown a set of ten verbal statements that reflected the four emotion categories. In a group situation, all subjects were exposed to four experimental conditions: (1) photograph alone, (2) statement alone, (3) photographs and statements paired congruently, and (4) photographs and statements paired incongruently. The photographs and statements were projected on a motion picture screen and the subjects indicated their responses to them on an emotion stimuli rating scale. The results indicated that there was significantly greater agreement among the subjects on the meaning of facial expressions when they were accompanied by congruent verbal statements than when they were viewed alone. Conversely, there was significantly less agreement on the meaning of expressions when they were accompanied by incongruent verbal statements than when viewed alone. The findings suggest that context is an integral part of the process of perceiving and interpreting facial behaviors. (FL)

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The Effect of Verbal Statements of Context On Facial Expressions of Emotion

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The Effect of Verbal Statements of Context

On Facial Expressions of Emotion

It has been stated that the face may be the single most important body area and channel of nonverbal communication (Harper, Weins, & Matarazzo, 1978) and, next to human speech, the primary source of giving information (Knapp, 1972). In spite of an increase in research in this area the face remains the most commanding, complex, and often confusing source of all bodily gestures (Ekman, Friesen, & Ellsworth, 1972).

Research on facial displays of emotion has focused primarily on whether these actions are universal, innate expressions or the learned responses of social beings who behave in culturally relative contexts. A review of the nature and nurture perspectives reveals sharp differences with regard to the importance of context in perceiving and understanding facial expressions of emotion. Indeed, studies conducted to test the influence of context (e.g., Bruner & Tagiuri, 1954; Fridja, 1958; Munn, 1940) have been inconclusive and, at times, have produced conflicting results (Ekman et al., 1972).

The nature position suggests that expressive behaviors are a vestige of biologically useful movements, which later become linked to emotional experience. Studies supporting this position indicate that these expressive behaviors are similar across cultures (Ekman et al., 1972; Izard, 1971). Based on these findings, Ekman et al. (1972) assert that accurate information can be obtained from the face alone, without any knowledge of the context in which the facial behavior occurs.

Conversely, the nurture position suggests that man is a social

being who learns a repertoire of behavior within a particular environment, replete with its own culture-specific rules (Birdwhistell, 1970; Hall, 1959; Scheflen, 1973). Within this framework the expression of emotion acts to communicate meaning in a social situation. Indeed, communication theorists clearly state that the meaning of a message, emotional or otherwise, cannot be divorced from the relationship and social context in which it occurs (Reusch & Bateson, 1968; Watzlawick, Beavin, & Jackson, 1967).

This study will attempt to shed light on the nature/nurture controversy by exploring the effect of adding verbal descriptions of context to posed facial expressions of emotion. In addition, pairing of both congruent and incongruent stimulus sources will be explored (Ekman et al., 1972). Furthermore, the effects of sex differences will also be investigated, since recent findings suggest that females are superior to males in their ability to convey affective states. (Buck, Savin, Miller, & Caul, 1972; Drag & Shaw, 1967; Zuckerman, Lipets, Koivumaki, & Rosenthal, 1975).

It should be noted that previous research has focused primarily on how accurate subjects are in identifying facial expressions (Walker, Marriott and Emory, 1980; Muzekari & Bates, 1977; Dougherty, Bartlett & Izard, 1974). In contrast, the present study is concerned with the differential effects of viewing photographs of facial expressions of emotion with, and without, a verbal context statement. Thus, change in perception rather than accuracy of perception is the essential focal point.

The research issues that appear most critical are:

(1) Will agreement on the meaning of facial expressions of emotion be

significantly greater when those expressions are accompanied by congruent emotion statements than when they are viewed alone?

(2) Will agreement on the meaning of facial expressions of emotion be significantly less when those expressions are accompanied by incongruent emotion statements than when they are viewed alone?

(3) Will agreement on the meaning of facial expressions of emotion be significantly greater when those expressions are portrayed by males vs. females?

Method

Subjects

The subjects were 98 (37 male, and 61 female) undergraduate students enrolled in social science courses at a local university and community college. The age range was 17 to 54 (M for males = 25.9, M for females = 26.0).

Emotion Photographs

To test the effects of context on the perception of emotion, four male and four female actors were employed to pose expressions of fear, anger, sadness, and happiness. Standard 3 3/4" by 3", black and white, polaroid prints, each showing the actor's head and shoulders, were developed and independently judged by three clinical psychologists as conforming to guidelines established by Ekman and Friesen (1975). Four photographs (one for each emotion) were selected for every actor and randomly assigned to four equal sets. Each set included the eight actors portraying fear,

anger, sadness, or happiness. Once established, the sets of photographs were fixed, and in no instance did a photograph appear in more than one set.

Verbal Statements of Context

In an attempt to define the verbal context, statements were developed to reflect the four emotion categories. Twenty-four situations were briefly described in one-sentence statements and shown to 15 college students who were informed that "each statement describes the experience of an individual adult." For every context statement, subjects were asked to: (1) decide what emotion the stimulus person was feeling, (2) judge the strength of the feeling, and (3) indicate the degree of confidence in their response. Based on these data, ten statements were subsequently selected as being representative of the four emotions.

Emotion Stimuli Rating Scale

An Emotion Stimuli Rating Scale (ESRS) was developed to measure subjects' responses to the photographs and verbal statements. Since it was felt that the exclusive use of forced-choice categories might constrict subjects' responses, both forced-choice and open-ended approaches were used. Specifically, when asked to answer "What is this person feeling?", subjects could choose from a list of six emotion categories (fear, anger, sadness, happiness, surprise, and disgust) or provide their own write-in response.

Experimental Conditions

There were four experimental conditions to which all subjects were exposed.

1. Photograph alone. Subjects were shown the photographs, projected on a screen, without benefit of verbal context.

2. Statement alone. Ten statements of context were read aloud with a brief-reminder cue. Example: When the statement, "This person is trapped in a fire," was read to the group, a reminder-cue, labeled "trapped in a fire", was shown on the screen.

3. Photographs and statements paired congruently. Example: While seeing an angry facial expression and a reminder-cue labeled, "Cheated out of one hundred dollars", the verbal statement, "This person was just cheated out of one hundred dollars" was read to the group.

4. Photographs and statements paired incongruently. Example: While a sad facial expression and reminder-cue labeled "large increase in salary" was viewed on the screen, the verbal statement, "This person just received a large increase in salary," was read to the group.

To control for possible order effects, a Latin Square design was used in presenting the experimental conditions and sets of photographs.

Procedure

All subjects were group tested and shown the emotion photographs and/or verbal statements projected on a standard motion picture screen. In each case they were asked to judge how the person was feeling. Subjects recorded their answers by selecting one of the six listed categories or by writing in their response. In addition, when statements and photographs were combined incongruently subjects were instructed to expand on Question 1, "What is this person feeling?", by describing in one or two sentences what it was about the photograph and/or statement that caused them to select a particular emotion category.

Results

The percentages of subjects' responses for each experimental condition are shown in Table 1.

(Insert Table 1 about here)

The McNemar test for significance of changes (McNemar, 1955) was utilized to determine significant changes in agreement among subjects from viewing photographs alone to viewing them with (1) verbal statements--paired congruently or (2) verbal statements--paired incongruently. The results of these analyses are presented in Table 2.

(Insert Table 2 about here)

Changes in agreement among subjects' responses from viewing photographs alone to viewing them with congruent statements of context were significant for the fear ($p < .001$), anger ($p < .01$), and sadness stimuli ($p < .01$), and not significant for the happiness stimuli. When sex of the stimulus person is taken into account, significant findings were obtained for the male fear, female fear, and female sadness stimuli (all p's $< .05$). However, the change in agreement was not significant for male and female anger, male and female happiness, and male sadness.

The changes in agreement among subjects' responses from viewing photographs alone to viewing them with statements paired incongruently were significant across all four emotion categories (all p's $< .01$). When sex of the stimulus person is taken into account, all emotion categories are significant with the exception of male anger ($p < .15$) and female sadness ($p < .09$).

Significant sex differences were found for the fear photographs when viewed alone ($p < .03$), and the sadness photographs when paired congruently ($p < .01$) or incongruently ($p < .01$) with verbal statements (see Table 1).

It should be noted that for three of the four emotion categories, (fear, anger, happiness), the percentage of subjects who elected to write in their own response was significantly larger when statements and photo-

graphs were paired incongruently than when photographs were seen alone or with congruent statements (all p's $< .01$).

Discussion

The purpose of this research was to examine the extent to which verbal statements of context influenced the perception of emotion in the human face. The major findings were: (1) There was significantly greater agreement on the meaning of facial expressions when they were accompanied by congruent verbal statements than when they were viewed alone; (2) Conversely, there was significantly less agreement on the meaning of facial expressions when they were accompanied by incongruent verbal statements than when viewed alone; and (3) Significant sex differences were found for two of the four emotion categories.

The findings suggest that context is an integral part of the process of perceiving and interpreting facial behaviors. Indeed, the data appear to support a transactional theory of communication in which the meaning assigned to a communicative act depends on the context in which the transaction occurs (Watzlawick et al., 1967).

The significance of context in the present study lends weight to Ekman and Friesen's (1975) theory of personal and cultural display rules which are governed by contextual factors such as preceding and subsequent behaviors, behavior of other interactants, the situation and its social "frame," and social norms. The finding that subjects modify their interpretations when the context is broadened to include information

about the social situation, suggests that if the context had been expanded to include other kinds of information (e.g. personal and cultural) further alterations in perception may have occurred.

The consistently high percentages of agreement observed for photographs of happiness in this and other studies (e.g. Drag & Shaw, 1967; Levitt, 1964; Zuckerman et al., 1975) suggest that happiness may be a discrete emotion category which can be identified similiarly across cultures (Ekman et al., 1972). Indeed, photographs of happiness were not significantly changed by the addition of congruent statements of context, although the findings may be the result of "ceiling effects." Despite the relative clarity of this emotion category, photographs of happiness were significantly changed when viewed in an incongruent context. This supports Birdwhistell's notion that even a smile must be interpreted within its social context to determine if it means pleasure, ridicule, friendliness, or good manners (Birdwhistell, 1970).

The data also reveal that agreement among subjects varied according to which emotion was being expressed. As noted, happiness is generally reported as the easiest emotion to recognize, however, the results obtained for fear, anger, and sadness have been inconsistent (Drag & Shaw, 1967; Levitt, 1964; Zuckerman et al., 1975). It may be that where confusion exists among emotion categories, subjects resort to other cues such as context to confirm their perceptions of emotion stimuli. For example, when subjects were asked to expand on their responses in the incongruent condition they appeared to resolve the conflict by:

(1) devising a rationale to explain the situation, (2) denying the existence of one of the stimuli, or (3) simply rejecting the stimulus situation. These patterns of response--rationalization, denial, and rejection may share a common element. That is, in order to utilize each of the response strategies, subjects had to attend to facial and contextual cues, further supporting the notion that context does make a difference. Indeed, subjects were most likely to provide a write-in response when the photographs and statements were paired incongruently, lending further weight to this speculation.

When photographs and statements were paired congruently, female stimuli were seen as significantly sadder than male stimuli. This lends further support to the findings that females tend to be better expressors of emotion than males (Buck et al., 1972; Gitter, Black & Mostofsky, 1972; Zuckerman et al., 1975). However, the cultural expectation which stereotypes women as being more "emotional" than men cannot be ruled out.

Contrary to expectation, when photographs of fear were viewed without statements of context, males were judged to be significantly more fearful than females. It is interesting to note that with the addition of context there were no significant sex differences in the fear category, suggesting that subjects may have modified their perceptions based on knowledge of the context.

In conclusion, the data demonstrate that agreement on the meaning of photographs of emotion can: (1) Change significantly with the addition of congruent vs. incongruent verbal statements of context, (2) be affected by the sex of the stimulus person, though a definite pattern was not

confirmed, and (3) vary across emotion categories. The findings suggest that in future research, consideration be given to the message value inherent in the social context.

TABLE 1

PERCENTAGES OF SUBJECTS' (N=98) RESPONSES
TO EMOTION STIMULI

Mode of Presentation	Sex of Stimulus	Fear	Anger	Sadness	Happiness
Photo Alone	Male	59.2	52.0	71.4	99.0
	Female	43.9	51.0	79.6	96.9
	Mean	51.5	51.5	75.5	98.0
Statement Alone		66.3	70.9	90.3	86.2
Photo with Congruent Statement	Male	76.5	66.3	82.7	100.0
	Female	67.3	64.3	92.9	96.9
	Mean	71.9	65.3	87.8	98.5
Photo with Incongruent Statement	Male	18.4	40.8	49.0	79.6
	Female	24.5	29.6	67.3	86.2
	Mean	21.4	35.2	58.2	83.2

TABLE 2

CHI SQUARE VALUES FOR SIGNIFICANCE OF CHANGES IN PERCEPTION OF STIMULUS PHOTOGRAPHS, FROM BEING VIEWED ALONE TO BEING VIEWED IN CONTEXT

Condition	Sex of Stimulus	Fear	Anger	Sadness	Happiness
Photo Alone to Photo with Statement - Congruent	Male	6.244*	3.674	2.564	N.S.
	Female	11.256***	2.630	5.760*	N.S.
	Male & Female Combined	18.107***	6.793**	8.266**	N.S.
Photo Alone to Photo with Statement - Incongruent	Male	27.161***	2.041	8.820**	9.600**
	Female	8.308**	8.820**	2.750	5.063*
	Male &	35.411***	10.343**	11.585***	15.612***

*p < .05
**p < .01
***p < .001
N.S. Not Significant

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FOOTNOTES

This article is based on a dissertation submitted by the first author to Temple University in partial fulfillment of the requirements for the Ph. D. degree.

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